



Application No.: 09/682,630

RD-29301

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Jiang et al. : Group Art Unit: 1742  
Application No. 09/682,630 : Examiner: A. Wessman  
Filed: October 1, 2001 : Response to Paper No. 11  
For: **Rhodium, Platinum, Palladium Alloy**

**AMENDMENT**

Assistant Commissioner for Patents  
Washington, DC 20231

S I R:

This case has been carefully reviewed in light of the Office Action of 8/13/2002, in which claims 35-51 were rejected under 35 USC 103(a) as being unpatentable over Reinacher et al., U.S. Patent No. 3,622,310; and claims 52-58 were rejected under 35 USC 103(a) as being unpatentable over Reinacher et al. in view of Selman et al., U.S. Patent No. 3,640,705. In this amendment, a declaration under 37 CFR 132 is included in this Response and is attached hereto. Reconsideration in light of the attached declaration and the following remarks is respectfully requested.

A detailed discussion of the applied references has been undertaken in previous prosecution of this application. Reinacher et al. discuss alloys comprising platinum, 1-49 percent palladium, and 1-49 percent rhodium, along with 0.1-5 percent of a metal such as zirconium, titanium, hafnium, tantalum, aluminum, beryllium, and the like, as dispersion strengthening additions to the alloys. Selman et al. also discuss alloys of platinum group metals with oxide-forming elements to form dispersion-strengthened alloys, and their uses in various applications, including jet engines and rocket motors.

As the Examiner has stated previously, Reinacher et al. do not explicitly disclose the compositions claimed in the present application. Furthermore, Applicants respectfully submit that the alloy compositions recited in independent claims 35, 43, 44, and 51 are not obvious in light of the cited references, in that these alloys possess properties that are unexpected in light of the prior art cited. Applicants respectfully herewith include a declaration under 37 CFR 132 by Dr. Melvin R. Jackson, a co-inventor in the present application, in support of this contention. Previous prosecution has set forth the fact that the alloys were developed based on a complicated

multivariate optimization experimental program that ultimately identified a critical composition range for alloys having the required properties. The declaration submitted herewith supplies data for two of the key parameters: hardness and modulus. As can be observed in Figure B of the enclosed declaration, only those alloys within the claimed composition ranges possessed the combination of hardness and modulus at the required levels. Alloys outside the range did not have this required combination. " 'Evidence that a compound is unexpectedly superior in one of a spectrum of common properties...can be enough to rebut a *prima facie* case of obviousness.' No set number of examples of superiority is required." *In re Chupp*, 816 F.2d 636, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987), *quoted in* MPEP § 716.02(a). Applicants respectfully submit that the demonstrated superiority is unexpected in light of the prior art, because such property-composition relationships are not taught, suggested, or disclosed in Reinacher et al. Therefore, Applicants respectfully submit that claims 35, 43, 44, and 51 are patentably distinct from this applied reference. In addition, Applicants respectfully submit that claims 36-42 and 45-50 are also patentably distinct, because each of these claims depends from one of the aforementioned independent claims, believed allowable as set forth above.

Similarly, Applicants respectfully traverse the rejection of claims 52-58 under 35 USC 103(a) as being unpatentable over Reinacher et al. in view of Selman et al. Selman et al. do not overcome the shortcomings of Reinacher et al., because Selman et al. merely describe the possible use of refractory metal alloys in jet engines. The combination of applied references fails to teach, suggest, or disclose turbine engine components comprising the alloys as recited in the rejected claims. These recited alloys making up part or all of the claimed components are the alloys recited in claims 35-51, which Applicants have argued, above, as being patentably distinct from Reinacher. Therefore, Applicants respectfully submit that claims 52-58 are patentably distinct from the applied combination of references.

In view of the foregoing, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are respectfully requested.

Respectfully submitted,



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Attachment: Declaration